

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An attitude determination and control system for a spacecraft comprising:

a ~~unified~~ an attitude sensor set that is adapted for use during ~~all phases of spacecraft operations~~ both transfer orbit operation and on-station operation of the spacecraft; and

a processor capable of determining and controlling attitude of said spacecraft during said operations ~~solely~~ using sensor inputs solely from the ~~unified~~ attitude sensor set.

2. (Currently Amended) The attitude determination and control system of claim 1, wherein the ~~unified~~ attitude sensor set includes at least one star tracker.

3. (Original) The attitude determination and control system of claim 2, wherein star tracker data is used to determine spacecraft attitude for transfer orbit operations and on-station operations.

4. (Currently Amended) The attitude determination and control system of claim 2, wherein star tracker data is used at least in part to determine spacecraft spin rate.

5. (Original) The attitude determination and control system of claim 2, wherein star tracker data is used at least in part to determine spacecraft attitude.

6. (Currently Amended) The attitude determination and control system of claim 2, wherein the ~~unified~~ attitude sensor set further includes at least one inertial measurement unit.

7. (Previously presented) The attitude determination and control system of claim 6, wherein the inertial measurement unit is a gyro device.

8. (Currently Amended) The attitude determination and control system of claim 7, wherein the gyro device is used at least in part to determine spacecraft spin rate.

9. (Original) The attitude determination and control system of claim 7, wherein the gyro device is used at least in part to determine the spacecraft attitude.

10. (Original) The attitude determination and control system of claim 7, wherein the star tracker data is used at least in part to determine the spacecraft attitude.

11. (Previously Presented) The attitude determination and control system of claim 7, wherein the attitude determination and control system uses the star tracker data to calibrate the gyro device.

12. (Currently Amended) The attitude determination and control system of claim 2, wherein the ~~unified~~ attitude sensor set further includes a solar panel current sensor.

13. (Currently Amended) The attitude determination and control system of claim 12, wherein the attitude determination and control system uses the solar panel current sensor at least in part for inputs to position the spacecraft body for power safety after loss-of-attitude.

14. (Currently Amended) The attitude determination and control system of claim 12, wherein the attitude determination and control system uses the solar panel current sensor at least in part to position the solar wing for power safety.

15. (Currently Amended) The attitude determination and control system of claim 12, wherein the attitude determination and control system uses the solar panel current sensor to validate an acquired stellar attitude.

16. (Canceled)

17. (Currently Amended) The attitude determination and control system of claim 16, wherein the transfer orbit operations include a ~~bi-propellant~~ transfer orbit operation that is performed using a bi-propellant thruster.

18. (Original) The attitude determination and control system of claim 16, wherein the transfer orbit operations include an electrical propulsion transfer orbit operation.

19. (Original) The attitude determination and control system of claim 18, wherein the electrical propulsion transfer orbit operation is performed using a XIP engine.

20. (Original) The attitude determination and control system of claim 18, wherein the electrical propulsion transfer orbit operation is performed using a Hall Effect Thruster.

21. (Original) The attitude determination and control system of claim 1, wherein the processor includes electronic hardware.

22. (Original) The attitude determination and control system of claim 1, wherein the processor includes software.

23. (Original) The attitude determination and control system of claim 1, wherein the spacecraft has its solar wings stowed.

24. (Original) The attitude determination and control system of claim 1, wherein the spacecraft has its solar wings deployed.

25. (Canceled)

26. (Canceled)

27. (Currently Amended) An attitude determination and control system for a spacecraft comprising:

a plurality of star trackers adapted for use during ~~all phases of spacecraft operations~~
both transfer orbit operation and on-station operation of the spacecraft; and

a processor capable of determining and controlling attitude of the spacecraft during
~~the spacecraft~~ said operations using inputs from the star trackers as the sole source of attitude sensor data.

28. - 34. (Canceled)